

CLAIMS:

1 A method for laser spot welding, whereby a laser beam is directed to the material to be welded, characterized in that, during the welding operation, the surface temperature of said material at the spot of the weld is detected.

5 2. A method as claimed in claim 1, characterized in that the laser beam, on its way to the weld spot, is reflected by means of a mirror and that infrared radiation coming from the weld spot passes through said mirror and is measured by a sensor.

10 3. A method as claimed in any one of the preceding claims, characterized in that the presence of a weld is determined depending on the detected surface temperature of the spot of the weld in the cooling down phase of the welding process.

15 4. A method as claimed in any one of the preceding claims, characterized in that the power of the laser beam is controlled depending on the detected surface temperature of the material at the spot of the weld.

5. A method as claimed in claim 4, characterized in that the power of the laser beam is decreased when a predetermined surface temperature level is detected.

20 6. A method as claimed in any one of the preceding claims, characterized in that the power of the laser beam is controlled depending on the laser power absorbed by the material to be welded.

25 7. A method as claimed in claim 6, characterized in that the laser power absorbed by the material is calculated by deducting the power of the reflected laser radiation from the power of the laser beam that hits the surface of the material.

8. A method as claimed in claim 6 or 7, characterized in that the power of the laser beam is switched off, or is decreased, after predetermined laser energy is absorbed by the material to be welded.
- 5 9. A method as claimed in any one of the preceding claims, characterized in that a feed back control of the power of the laser beam directed to the weld spot starts after the surface temperature has reached a predetermined level, which level is preferably a temperature near the melting temperature.
- 10 10. A device for laser spot welding, comprising means for directing a laser beam to the material to be welded, characterized in that temperature detection means are present for detecting, during the welding operation, the surface temperature of said material at the spot of the weld.
- 15 11. A device as claimed in claim 10, characterized by means for calculating the laser energy absorbed by the material to be welded, and by control means for controlling the power of the laser beam depending on the absorbed laser energy.